RoadMap

Coastal Management



EARTH SCIENCE RESEARCH DECISION SUPPORT INPUTS GOALS State 2 · Routine prediction of HAB events. · Increased response time for oil spills. · Mitigation of coral bleaching events. · Improved management decisions for sediment transport near coasts. NPP/NPOESS- global Reduced impact of pollution, spills to protected temperature and moisture & commercially important coastal resources profiles SST, ocean color, (reefs, fisheries). Routine forecasting of HAB chlorophyll measurements, events, climate-induced coastal change; turbidity, suspended matter modeling to support stormwater management: Improved capabilities concentrations. Littoral and mitigation of coastal inundation. to coastal resource sediment transport at < 1km managers for resolution prediction and Aquarius monthly, global Prediction of sediment & freshwater input to coastal analysis of impacts to waters, improvements in coastal circulation modeling for environmental and mapping (within 0.2 psu). GPM 3-hr global HAB prediction & tracking, stormwater, fisheries management. Prediction of conservative mixing region economic resources. precipitation data & 4-D for point source pollution into coastal waters – improved forecasting abilities for resource managers, public health officials, and hazard response teams. Predictions of structure of rainfall rates. Ocean vector wind improvements to coastal coastal inundation for emergency response planning. OGCM Higher spatial/temporal resolution of coastal models for Improved 3Dvar ocean circulation improved fisheries management, HAB tracking. Coastal models. GRACE geoid estimates. **Enhanced Decision Support** dispersion models for oil spill tracking – improved mitigation Chlorophyll advection products. Jason & OSTM sea surface state & strategies for hazard response teams. Projections of shoreline erosion. Bleaching indices for coral reef health estimation ocean tides - short-range advanced warning to sanctuary managers. circulation products. GODAE products. MODIS phytoplankton, DOM, SST, Chlorophyll products for HAB detection – increased lead time for ocean color. Aqua (AIRS & AMSR-E) SST. SeaWinds & AMSR-E surface wind shellfish managers and public health officials. Identification of coastal sediment flux around coral reefs & depth-classification fields. Jason & Poseidon SSH, waves, algorithms for coral reefs - assessments of environmental conditions detrimental to reef health. sea level, Correlation with GOOS data State 1 HAB Bulletin and Mapping System (c. 2002) EARTH OBSERVING MISSIONS NPP/ *Ocean NPOESS Vecor Winds *Pre-formulation 2000 2002 2004 2006 2008 2010

Where we are now

Use of Earth science observations on case-by-case project basis

Sea level change identified as a potential result of climate change with effects on coastal communities and ecosystems.

Use of SeaWiFS and QuikSCAT in HAB Bulletin and Mapping System

Where we plan to be

Routine use of Earth science products in decision tools by coastal management community

Use of Earth science data and model outputs and predictions supporting sea level scenario assessments for policy making and management.

Benchmark reports on performance of products from at least 7 sensors and models into at least 5 separate coastal issues and decision tools

2004 — 2012